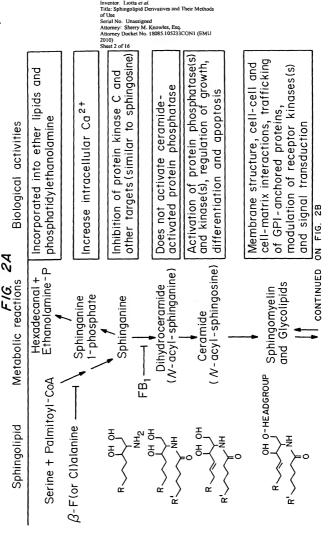
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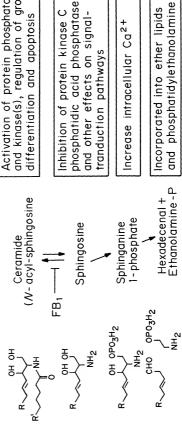
ОН ОН D-*erythro*-sphingosine ¥ NH₂

FIG. 1



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F1G. 2B



Activation of protein phosphatase(s) and kinase(s), regulation of growth,

phosphatidic acid phosphatase, Inhibition of protein kinase C and other effects on signal

Incorporated into ether lipids

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F/G. 3A

Sphingolipid

Examples of Biological Activities

CH2O-Glu-Gal-NAM Inhibition of EGF Receptor kinase 0 Inhibition of Cell Growth Ganglioside G_{M3} CH2O-Glu-Gal Stimulation of Cell Growth 0 Lactosylceramide CH2OPOCH2CH2N(CH3)3 Inhibition of colon carcinogenesis Interaction with Cholesterol Sphingomyelin Source of Ceramide via Sphingomyelinase Activation of Protein Phosphatase(s) Inhibition of Cell Growth Induction of Apoptosis, Differentiation Ceramide Mediator of Cellular Responses to: TNF, IL1 & Gamma Interferon Inhibition of Protein kingse C, Na +/K+ ATPase Phosphatidic Acid Phosphatase Activation of Phospholipase

Sphingosine

C, Na+/K+ ATPase Phosphatidic Acid Phosphatase Activation of Phospholipase C&D, EGF Receptor Phosphorylation, Protein kinase(s)
Inhibition of Cell Transformation, ODC Induction, Tumor Invasion/Metastasis Stimulation/Inhibition of Growth/Differentiation

CONTINUED ON FIG. 3B

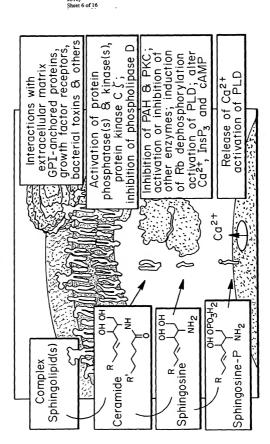
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OH CH2OPOH

Activation of
Phospholipase D
Release of Intracellular
Calcium
Stimulation of Cell Growth

FIG. 3B



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Sphingosine

Fumonisin B₁

Fumonisin B₂

$$\overbrace{\mathsf{CH_3}}^{\mathsf{OR}} \, \underbrace{\mathsf{CH_3}}^{\mathsf{OH}} \, \underbrace{\mathsf{OH}}^{\mathsf{OH}} \, \underbrace{\mathsf{CH_3}}^{\mathsf{CH_3}}$$

Fumonisin B₃

FIG. 5A

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Fumonisin B₄

Alternaria toxins (AAL toxins)

R = COCH2CH(COOH)CH2COOH

$$X \xrightarrow{\text{OH } V} Spacer Group - Z - W$$

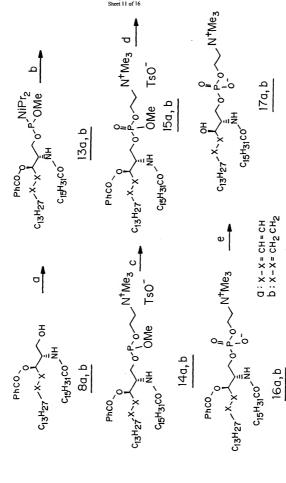
Fumonisin Analogs

FIG. 5B

nven.or. Lioua et ut.
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FIG. 6 COOMe .COOMe сон HN Вос Вос Вос 1 2 ēΗ ŌΗ `Вос 5a, b õн но _COPh NH_2 9 OH но COC₁₅H₃₁ 10 TBDPSO но ни сос₁₅н₃₁ NH₂ 11 o' COPh **TBDPSO** o-COPh O C 15H31 . 12 HN COC₁₅H₃₁ **G:X-X=CH=CH** b:x-x = cH2CH2 8a,b



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Reagents and conditions: (a) iPr2NP(OMe)CI/Et3N/CH2Cl2; (b) Choline tosylate/ Tetrazole/MeCN/THF; (c)tBuOOH/MeCN; (d)t-BuNH2/CH2Cl2;(e)MeONa/MeOH F1G. 7

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FIG. 8

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OCOPh MeO. HO <u>8a</u> 22 PhCOO **OCOPh** <u>23</u> **OCOPh OCOPh** HO1 HN C₁₅H₃₁ `C₁₅H₃₁ <u>25</u> <u>8a</u> ОН ΗŅ 27 <u>26</u> FIG.

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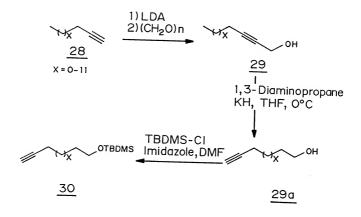
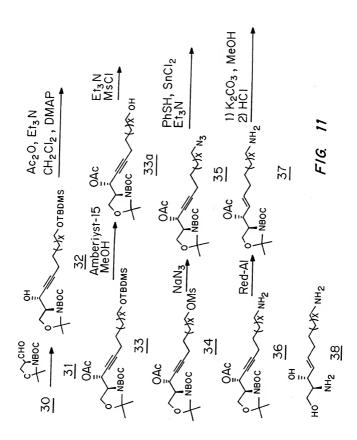
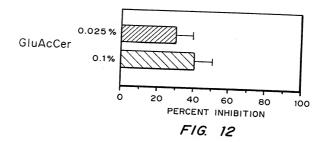
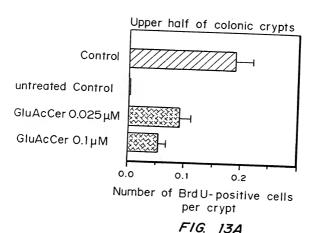


FIG. 10



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